

Living and Sustainability: An Environmental Critique of Design and Building Practices, Locally and Globally

1. Paper / Proposal Title:

The use and impact of manual and motorized blinds as aids to thermal and visual comfort in domestic buildings in the UK

2. Format:

Written paper / verbal presentation

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4. University or Company Affiliation:

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2. The British Blind and Shutter Association (BBSA), UK

5. Abstract (300 words):

Blinds and shutters create privacy during the day and night in residential and commercial buildings. They are also used to keep rooms cool when sunny and to minimise heat loss at night or in winter; in turn this reduces use of air conditioning/cooling and heating, associated energy inputs, carbon and equivalent outputs and costs. As well as controlling temperature, blinds and shutters are used to control daylight levels, which also impacts on associated energy costs related to artificial lighting. Occupants seek to improve visual

comfort through reducing glare, controlling light levels which together with the thermal benefits contribute to improvements in general health and well-being. Despite these various benefits in many instances in the UK blinds and shutters are not opened and closed and/or adjusted correctly and consequently the above benefits are not fully realised.

One means of addressing this problem is to ensure maximum operational energy savings and thermal and visual comfort is through the implementation of motorised and/or automatic blind opening and closures. By default however this increases the number and variety of components, materials and manufacturing processes and embodied environmental impact.

In this study Life Cycle Assessment is used to measure and compare the combined embodied environmental impact and potential operational energy savings of a variety of types of manual and motorised blinds in a typical domestic environment in the UK. The material properties and energy saving potential of contemporary blind materials are also compared with older examples in a number of databases that are used in the construction industry.

6. Author(s) Biography (200 words each):

Dr Deborah Andrews

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Deborah has about 20 years' experience in the field of sustainable design and manufacture, which she integrates into research, teaching and enterprise activities at London South Bank University. She has led and supervised a number of Knowledge Transfer Partnerships, TSB/Innovate, EPSRC and industry projects, the subjects of which range from the development of sustainable design tools and services to radiator valves and data centres. Current research includes work with iSTUTE, an EPSRC funded interdisciplinary centre looking at energy demand reduction in the UK, MRes and PhD projects exploring the development of a circular economy and user behaviours in the commercial refrigeration sector (with the Bond Group, design consultancies and BBSA (British Blind and Shutter Association)).

Zoe De Grussa

PhD research student in the School of Engineering, LSBU; attained BSC Engineering Product Design (with 1st class honours) at LSBU in 2015

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